

We claim:

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1. A gathering stapler, comprising:

a plurality of mutually interconnected subassemblies including a stapling carriage, a collecting chain, a stapling-displacement configuration, a delivery, and an ejector;

at least two of said subassemblies having a separate and dedicated drive each;

controllable motors forming power sources for said dedicated drives; and

control units connected to and operatively associated with each of said motors, said control units synchronizing a movement of one of said subassemblies with a movement of at least one other of said subassemblies.

2. The gathering stapler according to claim 1, wherein said stapling carriage and said collecting chain each has a respective said drive motor and a control unit connected to said drive motor.

3. The gathering stapler according to claim 1, wherein said stapling carriage, said collecting chain, and said stapling-displacement configuration each has a respective said drive motor and a control unit connected to said drive motor.

4. The gathering stapler according to claim 1, wherein at least three of said subassemblies have a dedicated said drive motor, and each of said drive motors has a dedicated control unit.

5. The gathering stapler according to claim 1, wherein each of said subassemblies has a dedicated said drive motor and each said drive motor has a respectively associated said control unit.

6. The gathering stapler according to claim 1, which comprises a central control device controlling said control units of said controllable motors.

7. The gathering stapler according to claim 1, wherein at least one of said control units of said controllable motors includes a device for detecting one of a rotational position and a rotational speed of said motor.

8. The gathering stapler according to claim 1, wherein at least one of the control units has a microprocessor.

9. The gathering stapler according to claim 1, wherein at least one of said control units has a connection for exchanging data and control signals.

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10. The gathering stapler according to claim 1, wherein at least one of said control units has a programmable control device for the respective said motor.

11. The gathering stapler according to claim 10, wherein at least one of said control units has an input/output unit for programmable control.

12. The gathering stapler according to claim 10, wherein at least one of said control units comprises a motor controller and a motor-control end stage.

13. The gathering stapler according to claim 7, wherein said device for detecting the rotational position or the rotational speed of said motor, in at least one of said controllable motors, is connected to said control unit.

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14. The gathering stapler according to claim 1, which further comprises a display device and an operating panel connected to said at least one control unit.

15. A method of driving a gathering stapler having a plurality of subassemblies including a stapling carriage, a collecting chain, a stapling-displacement configuration, a delivery, and an ejector, the method which comprises:

separately driving at least two of the subassemblies, each with a separately controllable drive;

commanding movements of the subassemblies driven in each case by controllable motors, with an electronic control unit;

synchronizing a movement of one separately driven subassembly with a movement of at least one other separately driven subassembly; and

executing a variable collecting-chain movement adapted to a simultaneous operation of the stapling carriage.

16. The method according to claim 15, which comprises cyclically altering the variable collecting-chain movement.

17. The method according to claim 15, which comprises acyclically altering the variable collecting-chain movement.

18. The method according to claim 15, which comprises:

effecting cycle-dependent movement of the stapling carriage, and a movement of the stapling-displacement configuration and of the collecting chain, which is different for individual machine-cycle periods and, at the end of each cycle, returns to a common starting state;

synchronizing the movement of the stapling carriage, the movement of the stapling-displacement configuration and the movement of the collecting chain such that for individual adjacent cycles, at different points in time, a respective product and the stapling carriage have speed profiles adapted to one another; and

carrying out a stapling operation at different positions on the product.

19. A method of operating a gathering stapler operating at a given machine cycle and having a plurality of subassemblies including a stapling carriage, a collecting chain, a stapling-displacement configuration, a delivery, and an ejector, the method which comprises:

separately driving at least three of the subassemblies, each with a separately controlled drive;

commanding movements of the subassemblies driven in each case by controllable motors, with an electronic control unit;

synchronizing movements of the separately driven subassemblies with a machine cycle; and

synchronizing a movement of the separately driven delivery and ejector subassemblies to produce the same transfer conditions for the product irrespective of the number of machine cycles.

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